



EDG Data Set Name

ASTER On-Demand L2 Surface Radiance VNIR

Granule Shortname

AST_09

Data Set Characteristics

Area: ~60 km x 60 km
 Image Dimensions: 4200 rows x 4980 columns
 File Size: ~189 Megabytes
 Spatial Resolution: VNIR = 15 m
 Projection: Universal Transverse Mercator (UTM)
 Data Format: HDF-EOS
 Vgroup Data Fields: 3



Product Description

The ASTER On-Demand L2 Surface Radiance is an on-demand product that contains atmospherically corrected visible and near-infrared data. It is generated using the 3 VNIR bands between 0.52 and 0.86 μm from an ASTER L1B image. Atmospheric correction involves deriving a relationship between the surface radiance/reflectance and the top of the atmosphere (TOA) radiance from information on the scattering and absorbing characteristics of the atmosphere. Once this relationship is established, it is used to convert ASTER VNIR's original radiance values to atmospherically corrected surface radiance and reflectance values. The atmospheric correction algorithm for VNIR is based on a Look-Up Table (LUT) approach that uses results from a Gauss-Seidel iteration of the Radiative Transfer Code (RTC). This methodology derives from the reflectance-based vicarious calibration approach of the Remote Sensing Group (RSG) at the University of Arizona. The algorithm is based on the relationship between the angular distribution of radiance, scattering and absorption in the atmosphere, and the surface properties. The RTC used to generate the LUT used for the atmospheric correction is based on the following parameters: solar zenith angle, satellite view angle, relative azimuth angle between the satellite and sun, molecular scattering optical depth, aerosol scattering optical depth, aerosol scatter albedo, aerosol size distribution parameter, and surface reflectance. The size distributions for aerosol are based either on a Junge size distribution or are based on the set of aerosol types used in the atmospheric correction of Multi-angle Imaging Spectroradiometer (MISR) data. The initial versions of the algorithm rely on external climatological sources for information on atmospheric absorption and scattering parameters. In due course, this information is likely to come from other Terra sensors like MISR and the Moderate-Resolution Imaging Spectroradiometer (MODIS). A digital elevation model provides the slope and elevation information for the accurate modeling of surface reflectance.

Vgroup Data Fields/ Spectral Range (μm)	Units	Data Type	Valid Range	Telescope Pointing Capability
VNIR (15 Meters)				
Band 1 (0.52 - 0.60)	$\text{w/m}^2/\text{sr}/\mu\text{m}$	16-bit signed integer	-32767 - +32767	+/- 24°
Band 2 (0.63 - 0.69)	$\text{w/m}^2/\text{sr}/\mu\text{m}$	16-bit signed integer	-32767 - +32767	+/- 24°

Band 3N (0.78 - 0.86)	w/m ² /sr/μm	16-bit signed integer	-32767 - +32767	+/- 24°
-----------------------	-------------------------	-----------------------	-----------------	---------

Ordering ASTER On-Demand L2 Surface Radiance VNIR

The process, procedures and instructions for ordering this product are described on the [ASTER On-Demand Data Gateway](http://edcdaac.usgs.gov/asterondemand/index.html) (<http://edcdaac.usgs.gov/asterondemand/index.html>). As part of that process, it is necessary to first select an ASTER Level 1B granule from the [EOS Data Gateway](http://edcimswww.cr.usgs.gov/pub/imswelcome/) (<http://edcimswww.cr.usgs.gov/pub/imswelcome/>).

Product Information

[Release Notes - Download Acrobat Reader](#)

(http://asterweb.jpl.nasa.gov/products/Ast07_v2.3.pdf)

[ASTER Standard Data Product Specifications Document](#)

(<http://asterweb.jpl.nasa.gov/documents/ASTERHigherLevelUserGuideVer2May01.pdf>)

[Algorithm Theoretical Basis Document \(ATBD\)](#)

(<http://eospsso.gsfc.nasa.gov/atbd/astertables.html>)

[ASTER JPL Web Page](#)

(<http://asterweb.jpl.nasa.gov>)

[EOS Data Products Handbook Volume 1 \(2000\)](#)

(http://eospsso.gsfc.nasa.gov/eos_homepage/misc_html/data_prod.html)

Contact Information

[LP DAAC User Services](#)

U.S. Geological Survey

EROS Data Center

47914 252nd Street

Sioux Falls, SD 57198-0001

Phone: 605-594-6116

Toll Free: 866-573-3222

866-LPE-DAAC

Fax: 605-594-6963

Email: edc@eos.nasa.gov

Web: <http://edcdaac.usgs.gov>

[LP DAAC](#)

[EDC Home](#)

[About](#)

[Products](#)

[Order Data](#)

[News](#)

[Help/FAQ/Edu](#)

[Links](#)

[Contact Us](#)

This site is hosted by the [USGS](#) - [NASA](#) Distributed Active Archive Center

[Disclaimers, Statements and Accessibility](#)

URL: http://LPDAAC.usgs.gov/aster/ast_09vd.html

Technical Contact: edc@eos.nasa.gov

Last Update: Wednesday, 19-Mar-2003 09:17:34 CST

[Download Adobe Acrobat Reader](#)

